CSI:

CT Simulation:

1) I would lay the patient out supine, arms at side on a bellyboard and extend their chin up and head backwards.

-Goal: 1) prevent divergence of PA field through jaw; 2) flatten cervical spine so that it is in a similar plane with the rest of spine

2) Custom aquaplast mask for fixation

3) Make three sets of leveling marks: head/mask, torso, and pelvis

Dosimetry:

Plan PA field first:

1) lateral field edge: 1.5-2 cm laterally from pedicles

2) inferior field edge: cover thecal sac (determined from pre-op MRI spine)

3) superior field edge: as low in cervical spine to allow for feathering, cranial field needs to clear shoulder (around C4-5)

NOTE: need spinal field length to calculate collimator rotation for cranial field

Next plan cranial field:

1) make sure to cover cribiform plate and temporal lobes

2) inferior cranial field edge should go as low as possible but clearing shoulders (usually C4-5)

NOTE: need cranial field length to calculate how much to kick the couch

I will collimate my whole brain field in order to match the divergence of my superior PA field.

angle = arctan(0.5 spine field length/ SSD)

In order to prevent the inferior edge of my whole brain field from diverging into my spinal field, I will kick the couch towards the gantry.

angle = arctan(0.5 brain field length/SAD)

I will not gap my fields. Instead, I plan to feather during treatment. For std risk medulloblastoma: feather on days 6, 11; for high risk medulloblastoma: feathre on days 8, 15. I would raise the inferior edge of my cranial field by 1 cm and raise the superior edge of my PA field by 1 cm.

PURPOSE: to smooth out the potential hotspots (or cold spots) generated from daily setup uncertainties.

Dose inhomogenieties can occur because of the natural curvature of the spine due to differing SSD and depth

-keep hotspots to <10%

-No more than a 10% isodose gradient over a vertebral body (scoliosis)

-placing a calc-point deeper into the patient will increase the hotspot; pulling the calc-point back more superficially will decrease the hotspot

-higher energy can mean increased exit dose anteriorly (consider changing the calc point if you want to drive dose deeper)